

Appln No. 09/775,315
Amdt date December 5, 2007
Reply to Office action of June 28, 2007

REMARKS/ARGUMENTS

As a preliminary matter, applicant would like to thank the examiner for conducting an interview with applicant's representatives on December 4, 2007. The amendments and arguments made in this supplemental amendment include the amendments and arguments discussed in the interview, and this paper serves as a summary of the interview.

During the December 4, 2007 interview, applicant and the examiner discussed amendments to the specification that would clarify certain passages in the disclosure and be responsive to the examiner's objection to the specification. Applicant and the examiner tentatively agreed on the amended language presented in this supplemental amendment. In particular, applicant has amended the paragraph beginning at page 7, line 9 to recite that the lithium nickel cobalt oxides and the lithium manganese oxides are bound together, but are not reacted and remain distinct chemical species. In addition, applicant has amended this paragraph to clarify that when heat treatment is performed at a temperature greater than 500°C, the lithium nickel cobalt oxides and the lithium manganese oxides are not bound and the unwanted reaction product may be obtained. Applicant has also amended this paragraph and the immediately following paragraph beginning at page 7, line 19 to remove reference to the term "reactant" in favor of the term "mixture," which more clearly defines the resulting product. As the term "reactant" was originally defined in the specification (at page 7, line 15) as a chemical mixture, this amendment does not introduce new matter. Given these clarifying amendments and the arguments presented in applicant's previous response to the June 28, 2007 Office action, applicant respectfully requests withdrawal of the objection to the specification.

Applicant and the examiner also discussed the rejection of claim 11 under 35 U.S.C. §103(a) as allegedly obvious over Mayer, et al. (U.S. Patent No. 5,783,333). In discussing this rejection, the examiner pointed to Column 12, lines 29-35 and lines 48-51 of the Mayer reference as disclosing a first binder in the electrode active material and a second, separate binder used in the preparation of the electrode. In response, applicant argued that the passages cited by the

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examiner in fact discuss the same binder, which is used to prepare the electrode, and not the active material. In particular, Column 12, lines 27-29 discusses the preparation of positive electrodes and notes that the positive electrode material components are first mixed and then combined with a binder, electronic conductor and corrosion prevention additive. Also, Column 12, lines 48-49 describes the method of forming "the above-described electrode components" into positive electrodes, further supporting the contention that the binder listed in the passage at lines 29-35 is the same binder listed in the passage at lines 48-51. Moreover, the section of the Mayer patent discussing these components is headed "Methods of Making Positive Electrodes." Column 11, line 36. Also, the section of the Mayer patent discussing composite positive electrodes (i.e. Column 8, line 10 through column 11, line 25) fails to disclose the use of a separate binder in the electrode active material.

During the interview, applicant and the examiner also discussed the maintained rejection of claims 1-4 under 35 U.S.C. §103(a) as allegedly obvious over Pynenburg, et al. (U.S. Patent No. 5,429,890) in view of Hasegawa, et al. (U.S. Patent No. 5,370,948). The examiner indicated that an additional Declaration under 37 CFR 1.132 introducing evidence of unexpected results achieved by a ratio of oxides that is closer to 1:1 would likely result in withdrawal of this rejection. While applicant maintains that the 1:4 ratio presented in the previously submitted Declaration is sufficient to establish unexpected results, in an effort to expedite allowance of this application, applicant has amended independent claim 1 to recite a weight ratio of the lithium manganese oxides to the lithium nickel manganese oxides ranging from about 4:6 to about 1:9. This amendment finds full support in the original specification, for example in Examples 4 through 7 at page 13, line 4 through page 14, line 6.

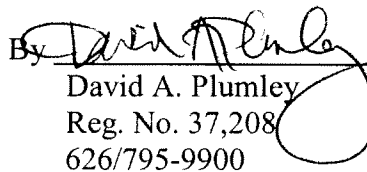
Positive active materials having lithium manganese oxides and lithium nickel manganese oxides present in a weight ratio within the claimed range exhibit unexpected and desirable results, as shown in Table 2 of the present specification and the Declaration of Geun Bae Kim filed March 28, 2007. In particular, Table 2 notes discharge capacities (in mAh/g) of 184, 167, 156 and 152 for positive active materials including the oxides in weight ratios within the claimed

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range. Additionally, the Declaration filed March 28, 2007 notes a discharge capacity (in mAh/g) of 179 for a positive active material including the oxides in a weight ratio of 2/8 (inside the claimed range) and a discharge capacity of 142 for a positive active material including the oxides in a weight ratio of 6/4 (outside the claimed range). Because the specification and the Declaration filed March 28, 2007 provide several weight ratios of the oxides for comparison, applicant submits that this evidence is sufficient to establish unexpected results. Given the unexpected results achieved by including the lithium manganese oxides to the lithium nickel manganese oxides in a weight ratio within the claimed range, applicant submits that independent claim 1, and all claims dependent therefrom, including claims 2-4, are allowable over Pynenburg and Hasegawa.

Claims 1-4 and 11 remain pending in this application. By this supplemental amendment, applicant has amended the specification for clarity along the lines agreed to during the December 4, 2007 interview. In addition, applicant has amended claim 1 to clarify the scope of that claim. In light of the above amendments and remarks, and in view of the arguments presented in applicant's September 26, 2007 response, applicant submits that all of pending claims 1-4 and 11 are in condition for allowance. Accordingly, applicant respectfully requests reconsideration and a timely indication of allowance. However, if there are any remaining issues that can be addressed by telephone, applicant invites the examiner to contact applicant's counsel at the number indicated below.

Respectfully submitted,
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